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Treating Adults with Chronic Pain: Exploring the Contemporary Trends of Occupational Therapy

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TREATING ADULTS WITH CHRONIC PAIN: EXPLORING THE
CONTEMPORARY TRENDS OF OCCUPATIONAL THERAPY

By

Jennifer Gough & Laura Roush

An Independent Study

Submitted to the Occupational Therapy Department

of the

University of North Dakota

In partial fulfillment of the requirements

for the degree of

Master's of Occupational Therapy

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This Independent Study paper, submitted by Jennifer Gough & Laura Roush in partial fulfillment of the requirement for the Degree of Master's of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

Faculty Advisor

Date

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Degree Master's of Occupational Therapy

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TABLE OF CONTENTS

LIST OF TABLES	v
ACKNOWLEDGEMENTS	vi
ABSTRACT	vii
CHAPTER	
I. INTRODUCTION	1
II. REVIEW OF LITERATURE	5
III. METHODOLOGY	20
IV. RESULTS	26
V. SUMMARY	34
APPENDICES	44
REFERENCES	52

LIST OF TABLES

1. Sample Demographics	27
2. Categories of Occupational Performance	27
3. Assessments	29
4. Frames of Reference/Models	30
5. Modalities	31
6. Collaboration with Others	31
7. Referrals	32
8. Information Sources	32
9. Workshops/Education Sessions (“Competent”)	32
10. Workshops/Education Sessions (All Respondents)	33

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“...to ride, shoot straight and speak the truth”
~The Thomas Ranch.

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“The informality of family life is a blessed condition that allows us to become our best while looking our worst.”
~Marge Kennedy

ABSTRACT

Treating Adults with Chronic Pain: Exploring the Contemporary Trends of Occupational Therapy.

Purpose: The aim of this study was to explore occupational therapy's approach in treating individuals with chronic pain. More specifically, to evaluate occupational therapy's role in current practices including assessments, models of practice, modalities, and competencies.

Methodology: Following IRB approval, a purposive sampling method was used to gain a sufficient number of participants to complete an online survey. Inclusion criteria for participants in this study included occupational therapists currently working in an outpatient setting, current members of the American Occupational Therapy Association (AOTA), and practicing within the states of Wyoming, North Dakota, South Dakota, Montana, Colorado, and Nebraska. Subjects were requested through a postcard notice to complete an online survey regarding the treatment of individuals with chronic pain. Survey questions pertained to 1) types of evaluations, 2) models of practice, 3) effectiveness of modalities, 4) collaboration approaches with other professionals, 5) primary sources of accessing information, and 6) number of workshops/continuing education sessions regarding chronic pain taken within the past three years.

Results: Thirty-five surveys were completed and submitted for an 8.8% rate of response. Descriptive statistics were used to describe the sample demographics which included

years of practice and average number of clients with chronic pain treated per week. A majority of the overall sample (54.28%) report having been in practice for 1-10 years. Twenty-three participants (65.71%) treat an average of 1-2 clients per week with a primary diagnosis of chronic pain. A tabulated proportion was used to correlate “competent” practitioners with the following variables: 83.3% use subjective client reports for primary methods of client evaluation; 76.67% use the Rehabilitative model; 60% rate massage as the most effective modality to treat chronic pain; 66.67% work collaboratively with other professionals more than 50% of the time; 73.33% do not refer clients to other pain specialists; 73.33% use research journals or medical websites as primary sources of education; and 53.33% have not attended any continuing education workshops regarding chronic pain within the past three years.

Summary: A low rate of response limited the researchers’ ability to indicate significant findings associated with the study’s variables. However, the results from this study indicated the need for more critical analysis of its contents. Results suggested that occupational therapists in outpatient settings are not largely utilizing occupation-based evaluations and models of practice when treating individuals with chronic pain. Furthermore, participants demonstrated a reliance on collaboration with other peers, research journals, and medical websites versus formal education sessions when attaining chronic pain knowledge. Implications of this approach may negatively influence occupational therapy’s ability to maintain true to the foundational perspectives unique to the profession. Results of this study demonstrate the need for future research to deeply investigate the factors associated with effective occupational therapy treatments for clients with chronic pain.

CHAPTER I

INTRODUCTION

Chronic pain is a significant problem in the U.S. with approximately 35% of the population being affected at any one time (Brown & Pinnington, 2007). This widespread and quickly growing problem has been projected by the World Health Organization to encompass 60% of the global disease burden by the year 2020 (Brown & Pinnington, 2007); and with an “estimated cost expenditure (medical, indemnity, and lost production) of more than \$200 billion a year” (McGeary, Mayer, & Gatchel, 2006, p. 317), it is imperative for healthcare professionals to employ reliable and clinically significant treatment services.

The International Association for the Study of Pain (IASP) defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (Stanos & Houle, 2006, p. 435). An acute pain response typically has associated behaviors that include limited participation in common life activities, resting for many hours throughout the day, and allowing others to provide care and assume responsibilities. If pain remains uncontrolled these behaviors persist and become “learned,” further perpetuating the physical and psychological responses to pain. These learned behaviors also contribute to muscle weakness and low levels of endurance, with secondary mental health issues that include depression, frustration, and grief due to persistent pain and loss of personal control (Chesney & Brorsen, 2000).

The physiological and psychological dichotomy of chronic pain has important clinical implications, as suffering appears to be more heavily influenced by the individual's reaction to pain rather than by actual pain intensity (Bear et al., 2007). An individual's culture, motivations, past experiences, and values play an important role in influencing reactions to pain; therefore, pain encompasses all client factors that reside within the individual (Borell, Asaba, Rosenberg, Schult, & Townsend, 2006). Living with chronic pain has the potential to impact an individual's identity and may contribute to secondary losses that include economic loss, loss of social relationships, loss of community approval, social stigma of being disabled, negative family responses, guilt over disability, loss of recreational activities, and loss of respect from family and friends (Stanos & Houle, 2006). Severe depressive symptoms associated with the inability to perform daily activities and the lack of perceived control only further perpetuate the negative psychological factors of chronic pain. The complex paradigm for managing life with chronic pain highlights the subtleties of living with this ongoing and challenging medical condition. The individual variables and secondary conditions associated with chronic pain further exacerbate the challenges and complexities faced by the individual and the treating clinician.

A great deal of research has been conducted on the origin, manifestations, and interpersonal struggles of chronic pain, specifically the debilitating psychological and physical effects on the individual's ability to function in daily life. Though occupational therapy is touted to treat such situations, the profession is increasingly limited by a lack of research supporting specific occupational therapy treatment interventions that address the multifaceted complexities of chronic pain. Research has found that occupational

therapists have very little undergraduate knowledge of pain-related issues, therefore affecting their willingness and readiness to work with these individuals in the first place (Brown & Pinnington, 2007). According to a study by Chesney and Brorsen (2000), occupational therapists' have a unique role in the treatment of chronic pain since they receive education in both physical and psychological dysfunction. Though occupational therapists are well suited to manage the complexities of chronic pain, they may be limited by the lack of evidence-based support and guidance specific to professional foundations and domains of practice.

The idea of employing treatment interventions based on theory and scientific research is essential to the progression and enduring success of any profession. The researchers of this study found literature regarding chronic pain to be largely specific to other disciplines such as physical therapy and mental health professions. This indicates that the evidence-based research available for occupational therapists is somewhat slow to transpire in comparison to other healthcare professions. Though some areas of professional practice are slow to adopt clinical practice based on scientific research, it is important to maintain a level of awareness regarding current treatment trends and processes. The movement towards employing evidence-based practice has become a pressing issue among healthcare providers in the U.S. This creates an increased need for occupational therapists to attain a deeper level of understanding and expertise regarding the complexities of diverse populations and perpetuates the need for development of theoretically occupation-based treatments.

The researchers' interest in this topic stems from an awareness of the growing focus government and healthcare professionals are placing on successful treatment for

individuals with chronic pain. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) now requires that pain be documented as the fifth vital sign in conjunction with blood pressure, pulse, temperature, and respiration (Brown & Pinnington, 2007). It is now essential for occupational therapists to begin questioning how treatments are conducted in order to determine the effectiveness of therapeutic services. For this reason, the researchers chose to explore the occupational therapy process by identifying current evaluation methods, models of practice, modalities, and competencies when treating individuals with chronic pain. Exploring how occupational therapists are currently approaching treatment for individuals with chronic pain may provide insight into what barriers, concerns, and/or strengths exist when treating this complex population.

CHAPTER II

LITERATURE REVIEW

Occupational therapists are increasingly providing services for populations with diverse needs in order to promote successful engagement in desired and necessary daily occupations. One such group concerns individuals living with chronic pain. The significance of this recognition, coupled with the negative effect pain has on rehabilitation outcomes, designates that pain should be one of the primary considerations when planning occupational therapy interventions (McGeary, Mayer & Gatchel, 2006). This literature review aims to identify physical and psychosocial treatment protocols currently utilized within the healthcare industry to treat chronic pain. In addition, the established and potential role of the occupational therapy profession in treating this complex disorder will be reviewed, along with an examination of the chronic pain experience and its effect on functional capacity. To retrieve literature relevant to this study, the search terms chronic pain, occupational therapy, treatment interventions, modalities, evidence-based practice, and psychosocial dysfunction were used within the CINAHL, PubMed, Cochrane, and Scopus databases.

Chronic pain is defined as “pain [which] persists for extended periods of time and accompanies a disease or is associated with an injury that has not resolved within the expected period of time or does not respond to routine methods of pain control” (Chesney & Brorsen, 2000, para.1). Results from a National Health Interview Survey report that approximately 13.7% of the total population in the U.S. limits their daily activities due to

chronic pain (Porth, 2005). Approximately half of all individuals with chronic pain experience severe depressive symptoms associated with a lack of perceived control over their condition and the inability to perform daily activities (Rochman & Kennedy-Spaen, 2007). Although one in four individuals with chronic pain reports satisfactory pain relief, many more report uncontrolled levels of severe pain (Rochman & Kennedy-Spaen, 2007). Women, the elderly, minorities, and young children are among the most vulnerable populations, experiencing undertreated levels of pain at a higher rate when compared to other groups (Rochman & Kennedy-Spaen, 2007).

Though pain is largely associated with sensory and/or emotional experience, the conscious recognition of pain has either nociceptive or neuropathic origins (Bear, Connors & Paradiso, 2007). Nociceptive pain is the consequence of small nerve endings registering a somatic sensation that is transmitted as a signal to the brain, warning of actual or potential tissue damage, whereas neuropathic pain is a consequence of the direct damage or injury to nerves (Bear et al., 2007). Though pain and its origin appear to be synonymous, the two are fundamentally different (Bear et al., 2007). Pain is an emotion or perception of a harmful or potentially harmful event, whereas nociceptive and neuropathic sensations are the physiological processes that provide signals to activate a pain response (Bear et al., 2007). Therefore it is possible for nociceptors to be firing continuously yet the individual might feel very little, intermittent pain. Similarly, the opposite situation can result in which an individual might report excruciating constant pain without the actual activation of nociceptors (Bear et al., 2007). The National Institute of Neurological Disorders and Stroke (NINDS) states, “the dramatic changes that occur with injury and persistent pain underscore that chronic pain should be

considered a disease of the nervous system, not just prolonged acute pain or a symptom of injury” (NINDS, 2009, What is the Future of Pain Research section, para. 8). This is an important consideration because it promotes the primary treatment of chronic pain rather than a secondary-effect effort (NINDS, 2009).

An individual experiencing pain in an acute situation will exhibit pain responses that include limiting participation in common life activities, resting for many hours throughout the day, allowing others to provide care and assume responsibilities, and physically grimacing when moved into an uncomfortable position (Chesney & Brorsen, 2000). Over time, pain responses can become routine and are considered maladaptive pain behaviors (Chesney & Brorsen, 2000).

The resulting physiological and psychological dichotomy has important clinical implications, as suffering also appears to be affected by the individual’s reaction to pain (Bear et al., 2007).

For example, Borell et al. (2006) sought to explore the experiences of participation in daily occupations among individuals with chronic pain and how they differ from the language used in the conceptual framework of the International Classification of Functioning, Disability and Health (World Health Organization, 2001) which primarily defines pain by sensation and body part. Borell et al.’s (2006) findings explored the need for advancing understanding of individual experiences related to participation, specifically as it relates to individuals with chronic pain. Individuals who live with chronic pain indicated a pressing need for health care professionals to attend to matters of their subjective experiences of participation and engagement in daily activities (Borell et al., 2006). Participants described taking action and being proactive about their

health as essential to “being able to make choices and intentionally affecting one’s engagement in daily occupations” (Borell et al., 2006, p. 78). Other participants noted that, in order to feel productive during participation in daily activities, they needed to be “doing” something physical and/or social in nature. While many participants valued the ability to participate with others, they also expressed the need to do something *for* others (Borell et al., 2006). Being able to facilitate meaning in another’s life was a central theme for the participants in this study, reflecting an inherent need for all individuals to maintain social relations with and for others as a vital aspect of participation and, therefore, a central theme for occupational therapy interventions (Borell et al., 2006).

A similar study published in the *Scandinavian Journal of Occupational Therapy* by Riitta Keponen and Gary Kielhofner (2006) sought to identify how women with chronic pain experience occupations in daily living situations. The qualitative study categorized findings according to major themes that included 1) *moving forward* 2) *slowing down* 3) *fighting* and 4) *standing still* (Keponen & Kielhofner, 2006). Moving forward described occupation as a source of enjoyment and a challenge to be solved, with a need for others to understand and support their performance in these occupations, and acquiring new ways to participate (Keponen & Kielhofner, 2006). Slowing down, the second theme, described the individual’s need for more time to accomplish activities, discovering how these needs may affect others negatively, and uncertainty about personal abilities to continue with participation in future endeavors due to pain (Keponen & Kielhofner, 2006). Fighting described the participant’s challenges with managing to meet obligations without expecting satisfaction or enjoyment as a result of the process, performing occupations without help and with the pain hidden from others, and difficulty

imagining the future (Keponen & Kielhofner, 2006). While the fourth theme, standing still, reiterates the concerns of individuals with chronic pain being unable to accomplish occupations until certain conditions are met, including the challenge of managing occupational demands without help from others, and feeling overwhelmed by the task of planning for the future (Keponen & Kielhofner, 2006). These findings represent the paradigm for managing life with chronic pain, and highlight the subtleties of living with this ongoing and challenging medical condition. The individual variables and secondary conditions associated with chronic pain further exacerbate the challenges faced by the individual and the treating clinician.

The National Institute of Neurological Disorders and Stroke (2009) identified specific demographic characteristics to be considered when providing treatment for chronic pain. Research has identified that women tend to seek help quicker, recover quicker, and are more resistant to allowing pain to dominate their life. Commonly held belief surmises that hormonal differences along with psychological and cultural influences promote gender specific reactions to pain (NINDS, 2009). Aging also contributes to pain issues; the institute reports that "...one in five older Americans takes a painkiller regularly" (NINDS, 2009, Pain in Aging and Pediatric Populations: Special Needs and Concerns section, para.1). When used in a habitual manner, pharmaceuticals such as aspirin, ibuprofen, and acetaminophen can cause intestinal and liver damage, and narcotic dependence (NINDS, 2009). Considered a vulnerable population, children may lack the ability to effectively describe their pain and therefore may be undertreated (NINDS, 2009).

From pediatrics to mental health settings, individuals with chronic pain are likely to experience associated conditions such as depression, anxiety, sleep disturbances, and decreased socialization (Chesney & Brorsen, 2000). Often times, these individuals and their caregivers become fearful and distrustful of healthcare professionals when the medical community is unable to eliminate or alleviate their pain (Chesney & Brorsen, 2000). Individuals seeking treatment for chronic pain are frequently treated by a myriad of health care professionals including physical therapists, occupational therapists, psychologists, exercise therapists, case managers, nurses, and pain specialists (Smith, 2007).

The complexities associated with chronic pain correlate well with the multidisciplinary or interdisciplinary approaches to treatment. Each specialist on the team possesses an area of expertise to address only specific parts of the chronic pain problem (Smith, 2007). The terms *multidisciplinary* and *interdisciplinary* are often used synonymously though they are foundationally different (Stanos & Houle, 2006). The multidisciplinary approach assumes that each member of the team treats the individual with chronic pain independently of other team members who are treating the same individual, whereas interdisciplinary approaches indicate that all disciplines work together to coordinate goal-oriented treatment for individuals with chronic pain (Smith, 2007). A study by Stanos and Houle (2006) describes the evolution of multidisciplinary and interdisciplinary models of practice as they relate to chronic pain treatment. The authors concluded that 75% of individuals treated through multidisciplinary pain centers report significant improvement regarding function, pain intensity, pain behaviors, and medical use when compared to control trials (Stanos & Houle, 2006). They also found the

three-year outcome of multidisciplinary treatments demonstrated cost-effectiveness for improving health and increasing return to work.

Another study illustrating the benefits of interdisciplinary care in chronic pain management investigated the Baylor Center for Pain Management outpatient program in Dallas, Texas (Oslund et al., 2009). The authors state that the goal of an interdisciplinary team must focus on "...providing skills in decreasing muscle tension and sympathetic nervous system activation by addressing and reframing beliefs about pain and coping" (Oslund et al., 2009, p. 212). Using an interdisciplinary treatment plan with emphasis on the biopsychosocial approach that incorporated the biological component of injury with the psychological reaction to injury, the authors were able to conclude that individuals experienced a significant improvement in measured pain, emotional distress, and daily functioning post-treatment (Oslund et al., 2009). Additionally, patients were able to maintain benefits regarding pain severity, interference of pain on lifestyle, perception of control of pain, perception of helpfulness of pain management techniques, and number of hours resting when measured at the six-month and one-year follow-up. These findings strengthen the support for an interdisciplinary team approach to effectively manage chronic pain (Oslund et al., 2009). Approaching chronic pain from an interdisciplinary model provides each profession the opportunity to utilize discipline-specific tools and instruments for assessment and intervention purposes while maintaining a common goal congruent with the team. Although many clients are not referred to the occupational therapist specifically for chronic pain, they may address the condition in a number of different practice settings, reinforcing the argument that occupational therapists will play

an important role in treating chronic pain at some point during their careers (Chesney & Brorsen, 2000).

The ability to assess and measure an individual's level of perceived life disruption due to disability is a primary component of occupational therapy practice. In consideration of chronic pain, little research has been performed regarding the utility of assessments. However, one occupational therapy evaluation tool has seen moderate interest in its comparative use with chronic pain (Rochman, Ray, Kulich, Mehta & Driscoll, 2008). In a study published in the journal *Occupation, Participation and Health*, the authors sought to identify the validity and utility of the Canadian Occupational Performance Measure (COPM) as an outcome measure in craniofacial pain including specific occupational performance problems (Rochman et al., 2008). Results from this pilot study support the validity of the COPM as a valid occupational outcome measure for the craniofacial pain population when compared to the global visual analog scale (Rochman et al., 2008). COPM scores improved from pretreatment compared to post treatment, as both pain severity and pain related disability scores improved (Rochman et al., 2008). This pilot study reinforces the need for outcome measures which possess published evidence of reliability and validity, along with information regarding ease of administration and availability. Based on these criteria, the COPM shows promising results as an outcome measure for chronic craniofacial pain (Rochman et al., 2008).

Comparatively, Bracciano and Mu (2009) described the occupational therapy profession's use of physical agent modalities (PAMS) in the clinic where the use of a biophysiologic occupational therapy assessments are designed to reveal the effects disease or injury have on engagement in purposeful activity. This knowledge assists with

identifying the biophysiologic components of pain, and promotes determination of different preparatory physical modality treatment options to utilize for rehabilitation (Bracciano & Mu, 2009) followed by purposeful and/or occupational treatment activities.

In regard to treatment, both physiological and psychosocial approaches have been utilized to address pain and chronic pain issues. For example, psychologists Eccleston, Williams, and Morley (2009) reviewed how “behavioral and cognitive treatments designed to ameliorate pain, distress and disability were first introduced over 40 years ago and are now well established” (p. 2). Cognitive behavioral therapy (CBT) is an evidence-based intervention for many psychosocial disorders and other problems affecting occupational performance (Beissner et al., 2009). The premise of CBT supports the idea that an individual’s beliefs, attitudes, and behaviors play an important role in pain perception, yet little evidence exists supporting the use of CBT in rehabilitative interventions for minimizing chronic pain (Beissner et al., 2009). An article in the journal *Physical Therapy* sought to identify the extent to which CBT is used during physical therapy treatment, and how often more “standardized” interventions are used. The authors also identified therapists’ interest in and barriers to including CBT treatment into practice (Beissner et al., 2009). Results of the study found that few therapists were using CBT as a complement to traditional treatment, although a substantial number of therapists expressed an interest in learning more about this intervention. The barriers identified included lack of knowledge, lack of skill level, and concerns regarding reimbursement (Beissner et al., 2009).

In reviewing the evidence for CBT approaches, one meta-analysis was located in the *Cochrane Database of Systematic Reviews* which examined the effectiveness of

Cognitive Behavioral Therapy (CBT) and Behavioral Therapy (BT) on pain, disability, and mood (Eccleston, Williams & Morley, 2009). CBT considers thoughts and beliefs about pain and the resultant effect on behavior, while BT examines how behaviors are affected by pain or pain relief (Eccleston et al., 2009). A review of forty studies concluded that “CBT and BT have weak effects in improving pain [and] minimal effects on disability associated with chronic pain” (Eccleston et al., 2009, p. 2). However, the therapies (primarily CBT) were effective in modifying and sustaining mood outcomes such as depression and anxiety (Eccleston et al., 2009). This study reiterates the need for continued research into the content, duration, intensity, and format of treatment to increase the effectiveness of psychological therapies when treating individuals with chronic pain (Eccleston et al., 2009).

Medical rehabilitative services commonly use physical agent modalities (PAMs) as methods of treatment to reduce edema and inflammation, promote healing, provide pain relief, and alter unhealthy skin properties (Bracciano & Mu, 2009). PAMs are used strategically to modify the healing process and structures involved in injury (Bracciano & Mu, 2009). Identifying the damaged tissues and the cellular and histochemical properties affected can assist in determining which PAMs to utilize (Bracciano & Mu, 2009). The controlled stresses delivered by modalities are similar to those which manual forms of therapy produce “through movement, handling techniques, [and] engagement in occupational tasks” (Bracciano & Mu, 2009, p. 2). Each is utilized “to modify and stress the healing tissue, to facilitate lymphatic drainage, to enhance cellular activity, and to moderate pain to facilitate engagement in occupation and movement” (Bracciano & Mu, 2009, p. 2). Numerous modality options are available, each with unique properties to

facilitate improved physical conditions if used properly (Bracciano & Mu, 2009). However, lack of education and training can hinder the effectiveness of PAMs and presents the potential to cause injury. For this reason, many states and institutions have developed licensing regulations to promote practitioner competence and to protect clients (Bracciano & Mu, 2009).

In theory, the complex physical and psychological components associated with chronic pain positions occupational therapists to employ their unique, holistic approach during treatment. Chesney & Brorsen (2000) identified varying treatment methods for occupational therapists to utilize when providing care for individuals with chronic pain. Recommendations included considering cultural influences, deterring pain behaviors through adaptive coping strategies, providing client education and resource information, physical treatment options, cognitive behavioral therapy, and relaxation/pacing techniques (Chesney & Brorsen, 2000). However, in practice, though occupational therapists are well suited to manage the physiological, psychological and social factors that perpetuate chronic pain, “research has found that occupational therapists have very little undergraduate knowledge of pain-related issues,” thus affecting their willingness and readiness to work with the chronic pain population as new graduates (Brown & Pinnington, 2007, p. 50). One way to gain a deeper understanding of specific treatment populations is to employ the use of evidence-based practice instead of relying only on clinical experience (Reagon, Bellin, & Boniface, 2008).

However, challenges faced by occupational therapists using evidence-based practice were outlined in the *International Journal of Therapy and Rehabilitation* by Reagon, Bellin, and Boniface (2008). The authors sought to uncover the meaning

attributed to evidence-based practice by occupational therapists. According to Reagon et al. (2009) many therapists defined evidence-based practice as scientific research, something which contradicts the client-centered concepts of occupational therapy (Reagon et al., 2008). The therapists also acknowledged the importance and function of evidence-based practice for filling in knowledge gaps, providing evidence for effective treatments, and enabling professional survival (Reagon et al., 2008). Participants referenced the conflict between client-centered therapy and evidence-based practice as a concept of “multiple truths” (Reagon et al., 2008). The authors described the conflict between the basic concepts of occupational therapy (client-centered treatment) and the biomedical model of evidence-based practice as a significant concern that exists regarding the prescriptive nature of evidence-based practice and its ambiguous definition with respect to occupational therapy (Reagon et al., 2008). According to Manchikanti, Boswell, and Giordano (2007), evidence-based practice is a complex part of the overall professional equation and should be used in conjunction with clinical experience, professional reasoning, and specific patient characteristics and needs.

Despite these evidently contradictory meanings for occupational therapy practitioners, within the healthcare industry, the term evidence-based practice (EBP) designates that current medical research be utilized to facilitate valid and reliable medical treatment protocols. The transition from clinician-opinion/experience-based service provision to evidence-based provision began during the late 1970s, according to Manchikanti et al. (2007). A call for improved standards of practice developed from historical “variations in clinical practice, coupled to high rates of inappropriate care and increased health expenditures” (Manchikanti et al., 2007, p. 333). Promoted as a standard

of practice in the twenty-first century, EBP serves multiple interests, including the Centers of Medicare and Medicaid Services (CMS), the standards promoted by professional medical organizations, and clients of medical services. The goal of EBP is to improve patient care by utilizing valid and reliable research-based information to develop appropriate, ethical treatment (Manchikanti et al., 2007). In addition, cost-containment directives have driven the need for efficient delivery of services within shorter time frames.

In consideration of continuing competence for occupational therapists, Schultz-Krohn (2009) claimed that “practice tools and intervention methods available to meet clients’ occupational needs have expanded dramatically over the past 5 to 10 years” (Schultz-Krohn, 2009, p.16). This corresponds with the Manchikanti et al. (2007) review, which regards the past decade as highly productive in the development of scientific research. While utilization of evidence-based research is promoted within the healthcare community, Manchikanti et al. (2007) reported that the Institute of Medicine “called attention to the health system’s ineffectiveness in applying new scientific discovery to the day-to-day practice of medicine” (p. 330). Within the *Occupational Therapy Code of Ethics* (2005), the principle of *duty* establishes the professional responsibility of occupational therapists to “achieve and continually maintain high standards of competence” (Manchikanti et al., 2007, p. 330), including the use of evidence to guide practice.

The bottom line for treating chronic pain from an ethical and holistic paradigm promotes the client-centered approach that occupational therapists designate as unique to the profession (Chesney & Brorsen, 2000) as well as utilization of current evidence.

Fundamentally, people experiencing chronic pain seek healthcare providers who believe their pain is real and who are prepared for the often arduous task of identifying effective treatments (NINDS, 2009). Such professional resilience and dedication to treat chronic pain is often under-represented in a society that recognizes chronic pain as a common and costly public health issue (NINDS, 2009). The individual variables and secondary conditions associated with chronic pain further exacerbate the challenges faced by the individual and the treating clinician.

Given the wide range of client demographics and variables, occupational therapists could be distinctly qualified to offer treatment for individuals with chronic pain by encouraging participation in meaningful activities (Rochman & Kennedy-Spaen, 2007). With a growing number of individuals experiencing various forms of chronic pain that include headaches, arthritis, back pain, cancer, injury induced, and vascular or neurological disorders, an increased demand is placed on knowledgeable health care providers (NINDS, 2009). It is essential for occupational therapists to deepen their comprehension of biopsychosocial evidence-based interventions to more effectively address the underlying mechanisms that contribute to the perpetuation of chronic pain. Despite the prevalence of chronic pain and its cost to society, it remains a disorder that is not sufficiently addressed within the healthcare community (Oslund et al., 2009). With a primary focus on regaining function through remediation or compensation, and a holistic approach utilizing physical and psychosocial knowledge, occupational therapists could be positioned to become leaders in the provision of chronic pain management (Chesney & Brorsen, 2000).

Results from this literature review illustrate the lack of evidence-based research guiding the practice of the occupational therapy profession regarding treatment of chronic pain. The researchers conducting this study found very few research-based studies regarding occupation-based models/frames of reference, and limited information relating to assessments used to guide the therapeutic process when treating individuals with chronic pain. Much of the research uncovered concerning physical agent modalities as treatment for chronic pain was largely specific to the physical therapy profession; similarly, the studies conducted on the use of CBT and BT were essentially on behalf of mental health professionals. This lack of research on occupation-specific services available for treating chronic pain is unfortunate and perpetuates reliance on other healthcare disciplines to forge accepted practices.

With chronic pain emerging as a specialty area of practice in the rehabilitation field, there is opportunity for occupational therapy professionals to be insightful and creative when treating the complexities associated with this population. However, in preface, it is also important to investigate how occupational therapists are currently approaching treatment for individuals with chronic pain in practice. Toward this end, the researchers of this study hope to identify common characteristics associated with perceived competence, practice models in use (if any), selected treatments, and other descriptive information to identify what OT's are doing in practice and whether these practices correlate with the available evidence on treating chronic pain as a multi-layered, complex biopsychosocial phenomenon.

CHAPTER III

METHODOLOGY

According to Kielhofner (2006), a descriptive approach is appropriate for the design of a study which focuses on the characterization of variables or circumstances regarding a subject of interest. “Information about the subjects of a study on key demographic variables” (Kielhofner, 2006, p. 59) is essential in characterizing research participants, as well as “...illuminating some phenomena or circumstance that is of interest to the field” (Kielhofner, 2006, p. 59). On the other hand, correlational research aims to “...identify whether specified variables are related, or to determine which variables are related in a multivariable study” (Kielhofner, 2006, p. 62).

In the current study concerning the practice of occupational therapists in the treatment of chronic pain, the guiding research question is intended to produce descriptive information: What therapeutic practices are occupational therapists currently using in the treatment of chronic pain? Meanwhile, correlation inquiries were made to explore common characteristics between self-rated competency levels of occupational therapists and 1) types of evaluations, 2) models of practice, 3) effectiveness of modalities, 4) collaboration approaches with other professionals, 5) primary sources of accessing information, and 6) number of workshops/continuing education sessions regarding chronic pain taken within the past three years.

Instrument

Survey research is a method of inquiry which assists the researcher in gathering self-reported data from a sample of people (Forsyth & Kviz, 2006, p. 91). The primary advantage of survey research is the ability to reach several subjects, collect data on several variables, and manipulate the data (Forsyth & Kviz, 2006, p. 91). According to Forsyth and Kviz (2006), the researcher must follow several key steps in building the interview: define the variables, formulate and format the questions, and pilot and revise the survey.

Seeking a convenient method for gathering data, the researchers utilized an electronic survey format. Forsyth and Kviz (2006) point out that online administration is an increasingly used method to gather survey data. A primary strength of on-line surveys is the convenience and ability to export data directly into a statistical analysis package. In the current study, SurveyMonkey™ website was recommended by a faculty member familiar with the software and its established reputation with electronic surveys. SurveyMonkey™ software was chosen based on its reliable security measures. This software is protected and private to any external attempts to access participant information or data; therefore, little to no risk was identified with participation in this study. Participant information and privacy were of utmost consideration, and because there were no identifiable markers associated with responses, confidentiality was maintained throughout the data gathering process. Additional Secure Socket Layer (SSL) encryption measures were purchased by the researchers to secure the connections between the participants and servers. Upon completion of this study, all information provided by the participants will remain on an external storage device and will be kept in

a locked file cabinet for a period of three years, at which point it will be destroyed following the Institutional Review Board recommendations at the University of North Dakota.

A three-page survey instrument was developed based on the culmination of various survey design techniques including information from the literature review, discussions with faculty advisors, the Occupational Therapy Practice Framework, and the process of piloting and revising survey content. The first step, a review of the literature, revealed very few evidence-based studies regarding occupational therapy's approach to treating chronic pain. A majority of studies reflected approaches common to other disciplines rather than focusing specifically on occupational therapy. In collaboration with faculty, key variables were identified including: perceived competence, assessments utilized in practice, frames of reference used by practitioners, modalities/treatment, sources of evidence for practice, extent of continuing education, and frequency of referrals to specialists. The Occupational Therapy Framework guided the characterization of the practice and clarified how therapists would use the domain to develop the occupational profile of individuals with chronic pain. Questions which could elicit information about the data were drafted and re-drafted several times in an iterative process involving pilot testing with several practicing occupational therapists and faculty members in Casper, Wyoming, and Grand Forks, North Dakota. Following the advice of Forsyth and Kviz (2006), the researchers took measures to reduce bias within the questions (checking for assumptions), create questions about which the subject should know something about (relevant to OT practice), and be clear and unambiguous (e.g., no

complex/lengthy sentences), as well as asking closed questions with exhaustive responses in most instances.

The format of the survey was determined through the use of available options in SurveyMonkey™. Upon entering the web URL, the respondent was greeted with the title of the study, directions on how to complete the survey, and the affiliation of the student researchers with the University of North Dakota at Casper College. Each question was assigned a sequential number using full sentence structure. Responses were available in a vertical format, following the advice of Forsyth and Kviz (2006). After collecting basic demographic and introductory information, the sequence of the survey followed the basic OT process: assessment, evaluation, intervention, clinical reasoning, outcome, and referral. Ultimately, the instrument included a fifteen multiple-question survey. The outline of the survey began with clinician experiences related to the number of years in practice, a self appraisal of competency, and an average number of clients treated per week with a primary diagnosis of chronic pain. The survey addressed types of evaluations, frames of reference/models of practice, effectiveness of various intervention methods/modalities, collaboration with other professionals, primary sources of accessing information about chronic pain, and number of educational workshops attended within the past three years. Six out of the fifteen questions provided the respondent with an open-ended “other (please specify)” option should they feel inclined to offer a more detailed narrative.

After pilot testing, no further pre-testing was conducted. The study and survey were submitted to the University of North Dakota Institutional Review Board (IRB-

200905-338) who approved the following methodological approaches required for this study.

Sample

Given the researchers' inability to access direct clinician emails via the State (WYOTA) and National (AOTA) associations, participants were contacted through purposive sampling via mailing addresses provided by the American Occupational Therapy Association (AOTA). The sample of occupational therapists was selected if they met inclusion criteria of working in a physical dysfunction outpatient setting within the states of Wyoming, North Dakota, South Dakota, Montana, Colorado, and Nebraska. Exclusion criteria included occupational therapists not currently working in outpatient physical dysfunction settings or not living in the geographical area of interest. These states were chosen specifically for their common demographics and similar cultural structures. To promote the study's rigor, postcards were mailed to approximately 400 potential participants and included an explanation of consent, a direct link to the survey web address, and the researchers' contact information. The researchers followed up the postcard mailing with additional phone contact to encourage participation in the survey. The final sample reached an N=35.

Data Analysis

Participants were requested to complete and submit surveys by directly accessing a link to the URL for the survey. The survey was accessible to participants for six months (April-October) in order to incorporate the sending, receiving, and analysis of results. After the respondent's information was submitted, raw data was downloaded from SurveyMonkey™ into a Microsoft Excel 2007 spreadsheet for further analysis.

Raw data was coded into Stata Data Analysis and Statistical Software version 10.0 to tabulate and analyze the survey's results. Stata software was chosen for data coding and analysis as it allows users to control all types of data that include combining and reshaping datasets, managing variables, and collecting statistics across groups or populations. Stata also has advanced tools for managing specialized data such as survival/duration data, panel/longitudinal data, categorical data, and survey data. Results follow in the next chapter.

CHAPTER IV

RESULTS

Demographics

Thirty-five surveys were completed and submitted for an 8.8% rate of response. Descriptive statistics were used to describe the sample demographics presented in Table 1. Demographic characteristics included years of practice and the number of clients with chronic pain treated per week.

Years of practice.

The majority of participants (19) have been practicing occupational therapists for 1 to 10 years (54.28%). Twelve participants (34.29%) reported practicing for 10+ years, and four participants (11.43%) have practiced less than one year.

Number of clients with chronic pain treated per week.

Twenty-three respondents (65.71%) treat an average of 1-2 clients per week, four (11.43%) report treating 3-4 clients per week, three (8.57%) treat 5+ per week, and five (14.29%) reported treating no clients with a primary diagnosis of chronic pain on a weekly basis.

Table 1. Sample Demographics

Demographic Variables	Frequency	Percentage
Length of Service		
Less than a year	4	11.43%
1-10 years	19	54.28%
More than 10 years	12	34.29%
Clients Treated Per Week		
0	5	14.29%
1-2	23	65.71%
3-4	4	11.43%
5+	3	8.57%

Treatment Focus

Frequency data was tabulated to demonstrate the areas of occupation most affected by chronic pain. These results are presented in Table 2.

Areas of occupational performance most impacted by chronic pain.

Of the thirty-five respondents, the majority (80%) identified *work* to be the client's area of occupational performance most impacted by chronic pain. Other areas were *rest and sleep* (77.14%), *leisure* (62.86%), *IADL* and *social participation* (51.43%), *ADL* (42.86%), *play* (14.29%), and *school* (8.57%).

Table 2. Categories of Occupational Performance

Limited Areas of Occupational Performance (multiple answer)	Frequency	Percentages
Work	28	80.00%
Rest and Sleep	27	77.14%
Leisure	22	62.86%
IADL	18	51.43%
Social Participation	18	51.43%
ADL	15	42.86%
Play	5	14.29%
School	3	8.57%

Comparisons

Of the thirty-five occupational therapists who responded to the survey, thirty rated themselves as feeling competent in treating chronic pain versus five who rated themselves as not feeling competent, rendering those reporting “not competent” with a cell count so low that results were disproportional when compared with participants who reported feeling “competent.” Therefore, the following survey variables are associated with the thirty participants who reported feeling competent.

A tabulated proportion was used to correlate “competent” practitioners with the following variables:

- Types of assessments and frames of reference used
- Ratings of effectiveness for varying modalities
- Professional collaboration
- Frequency of referrals
- Primary sources of accessing information about chronic pain
- Number of workshops/continuing education sessions attended within the past three years

Assessments.

Assessments most used by participants who felt competent treating chronic pain were subjective client reports (83.3%), facility specific assessments (30%), and the Functional Independence Measure (FIM) (26.7%), followed by the Occupational Performance History Interview II (OPHI-II) and Pain Efficacy Questionnaire (6.7%), and the Canadian Occupational Performance Measure (COPM) (3.3%). An “other” category

yielded a subjective response of Occupational Self Assessment (OSA) (3.3%). Results are presented in Table 3.

Table 3. Assessments

Evaluations/Assessments (Multiple Answer)	Frequency	Percentage
Subjective Client Report	25	83.33%
Facility Specific Assessment	9	30.00%
FIM	8	26.67%
OPHI	2	6.67%
Pain Self Efficacy Questionnaire	2	6.67%
COPM	1	3.3%
Subjective Narrative: OSA	1	3.3%

Frames of reference/models.

Of those participants who reported feeling competent, 76.6% use the Rehabilitative frame of reference, 50% reported using the Biomedical model, and 36.7% use either the Neurodevelopmental frame of reference or the Person-Environment-Occupation (PEO) model. Other frames of reference used included the Biopsychosocial frame of reference and Cognitive Behavioral Therapy (CBT) model (33.3%), the Model of Human Occupation (MOHO) (26.7%), and the Canadian Model of Occupational Performance (CMOP) (6.7%). An “other” category yielded the subjective responses of “Sensory Integration” and “Ecological Model.” Results of this category are presented in Table 4.

Table 4. Frames of Reference/Models

Types of Models/Frames of Reference (Multiple Answer)	Frequency	Percentage
Rehabilitative	23	76.67%
Biomedical	15	50.00%
Neurodevelopmental	11	36.67%
PEO	11	36.67
Biopsychosocial	10	33.33%
CBT	10	33.33%
MOHO	8	26.67%
CMOP	2	6.67%
Subjective Narrative:		
Sensory Integration	1	3.33%
Ecological Model	1	3.33%

Ratings of effectiveness for varying modalities.

Participants who felt competent treating chronic pain rated massage (60%) as being most effective when treating chronic pain, followed by heat modalities (53.3%), and relaxation techniques (50%). Other modalities found to be effective included exercise conditioning (46.7%), transcutaneous nerve stimulation (43.3%), electrical muscle stimulation, paraffin, and ultrasound (40%), cold modalities and biofeedback (33.3%), acupressure (26.7%), iontophoresis and whirlpool (23.3%), and fluidotherapy (13.3%). Results are presented in Table 5.

Table 5. Modalities

Ratings of Modality Effectiveness	Frequency	Percentage
Massage	18	60.00%
Heat Modalities	16	53.33%
Relaxation Techniques	15	50.00%
Exercise Conditioning	14	46.67%
Transcutaneous Nerve Stimulation	13	43.33%
Electrical Stimulation	12	40.00%
Ultrasound	12	40.00%
Paraffin	12	40.00%
Cold Modalities	10	33.33%
Biofeedback	10	33.33%
Acupressure	8	26.67%
Iontophoresis	7	23.33%
Whirlpool	7	23.33%
Fluidotherapy	4	13.33%

Collaboration with other professionals.

Twenty “competent” participants (66.7%) reported working collaboratively to treat clients with chronic pain more than 50% of the time, while ten participants (33.3%) indicated working collaboratively less than 50% of the time. Results are presented in Table 6.

Table 6. Collaboration with Others

Treating Collaboratively	Frequency	Percentage
More than 50% of the time	20	66.67%
Less than 50% of the time	10	33.33%

Frequency of referrals.

Of those participants who reported feeling competent, eight (26.7%) described referring clients outside their facility to other disciplines for specialized pain management treatments. Results are presented in Table 7.

Table 7. Referral

Referral to Specialists	Frequency	Percentage
Do refer	8	26.67%
Do not refer	22	73.33%

Primary sources of accessing information about chronic pain.

Twenty-two participants (73.3%) who regarded themselves as competent reported using research journals and/or medical websites as their primary source of information regarding the proper treatment of chronic pain. Other sources of information sought by these occupational therapists were informal peer discussions (70%) and continuing education/clinical in-services (63.3%). Results are presented in Table 8.

Table 8. Information Sources

Sources	Frequency	Percentages
Research journals and medical websites	22	73.33%
Informal peer discussion	21	70.00%
Continuing education and clinical in-services	19	63.33%

Number of workshops/continuing education sessions attended within the past three years.

Within the past three years, only 46.7% of “competent” respondents reported attending 1-3 continuing education workshops regarding chronic pain. Results are presented in Table 9.

Table 9. Workshops/Education Sessions (“Competent”)

Attendance rate within the past three years	Frequency	Percentages
None	16	53.33%
1-3	14	46.67%

Among all thirty-five respondents, 54.3% did not attend any continuing education workshops regarding chronic pain within the past 1-3 years. Results are presented in Table 10.

Table 10. Workshops/Education Sessions (All Respondents)

Attendance rate within the past three years	Frequency	Percentages
None	19	54.29%
1-3	16	45.71%

CHAPTER V

SUMMARY

Reiterating the basic description and findings in the study:

- A majority of the overall sample (54.28%) report having been in practice for 1-10 years.
- Twenty-three participants (65.71%) treat an average of 1-2 clients per week with a primary diagnosis of chronic pain.
- Twenty-eight (80%) respondents report *work* to be the area of occupational performance most impacted by chronic pain.
- The majority of therapists (85.7%) felt competent treating clients with a primary diagnosis of chronic pain.
- Of the individuals who felt competent, 83.3% conduct a subjective client report to evaluate clients with chronic pain.
- More than half of “competent” participants (76%) indicate using the Rehabilitative frame of reference to guide treatment interventions.
- Participants who felt competent treating chronic pain rated massage (60%) as being the most effective form of modality.
- Of the majority of “competent” responders, 66.7% work collaboratively to treat clients with chronic pain more than 50% of the time.
- Twenty-two participants (73%) regarding themselves as competent use research journals and/or medical websites as their primary source of information.

- Within the past three years, only 47% of “competent” therapists attended 1 to 3 continuing education workshops regarding chronic pain.
- Of the total sample, 54.49% did not attend any continuing education opportunities regarding chronic pain within the past three years.

The results from this study suggest the need for critical analysis and deeper discourse. Discussion of the results as they pertain to occupational therapy will follow in the next section.

Discussion

Results of this exploratory study illustrate the dominant characteristics of occupational therapists who regarded themselves as “competent” in treating chronic pain. The prevalence for occupational therapists who treat clients with a primary diagnosis of chronic pain is somewhat high (1-2 clients per week). This indicates a need for outpatient occupational therapists working in physical disability settings to have an understanding of chronic pain and associated issues. The growing prevalence of chronic pain is also a concern for new graduates, as research has found that a majority of occupational therapists have very little undergraduate knowledge of pain-related issues (Brown & Pinnington, 2007). A move towards educational institutions providing a comprehensive overview of current treatment approaches proven beneficial with this population would better prepare new graduates to meet these challenges.

The first step in the occupational therapy process involves evaluation of the client to assess and measure individual levels of perceived life disruption due to injury or disability. Occupation-specific evaluations are instrumental in maintaining the strengths unique to occupational therapy and reflect the philosophical foundations of the

profession. Of the surveyed occupational therapists who feel competent treating chronic pain, 83.3% reported using a subjective client report (e.g., analog pain scale), and only 10% reported using occupation-based assessments recommended by the profession. An interesting finding among those participants who rated themselves “not competent” when treating chronic pain, none indicated using an occupational therapy assessment. Though the survey only provided participants with two occupational therapy assessment options (Occupational Performance History Interview-II, Canadian Occupational Performance Measure), an “other (please specify)” category was available for respondents to add a subjective narrative. The only response to this option was the “Occupational Self Assessment” (OSA), therefore introducing the possibility that clinicians may not be regularly using assessments specific to the occupational therapy profession, at least in the small sample of clinicians surveyed. Unfortunately, regular reliance on evaluations not specific to the profession renders therapists unable to gain a true and holistic perspective of the clients they treat. Simply relying on a subjective client report of pain focuses the treatment on one dimension (physical body) of the individual’s experience. Assessments that focus solely on the physical manifestations of pain approach treatment from a reductionistic perspective compared to the holistic approach measured through occupation-based evaluations.

Of the surveyed practitioners who felt competent treating chronic pain, a greater majority used more than one type of model. On average, “competent” respondents reported using three different types of models/frames of reference when treating clients with chronic pain. Participants who felt competent appeared to utilize a greater range of models; however, the majority of models were not specific to occupational therapy (e.g.,

biomechanical and rehabilitative). The utilization of such occupational therapy medical-based models determines how therapists make decisions that influence the structure and evolution of the overall treatment plan. According to Cole and Tufano, “the client’s mental and physical functions work together in creating problems with occupational performance, and both need to be considered when using a rehabilitation approach” (Cole & Tufano, 2008, p.166). Therefore, occupational therapists using the rehabilitative and biomedical models should be utilizing them in conjunction with models that address psychosocial dysfunction.

Modalities are common methods for the promotion of healing and pain relief treatment in many outpatient rehabilitation settings (Bracciano & Mu, 2009). Of the surveyed occupational therapists who felt competent treating chronic pain, 60% rated massage as being most effective, followed by heat modalities (53%), and relaxation techniques (50%). Based on the literature review conducted for this study, the researchers found limited evidence regarding the effectiveness of these specific modalities when treating chronic pain. Occupational therapists providing physical agent modalities are positioned to use them as adjunct to or preparatory for client engagement in purposeful and occupation-based activities (Bracciano & Mu, 2009). However, it is important to note that the use of these modalities comes into question if the therapist lacks the necessary education and training to safely implement these treatment methods. Another implication for the use of modalities involves the effectiveness for long term pain relief. If occupational therapists are consistently focused on treating the physicality of pain, culture, emotional associations, and environmental factors remain largely ignored.

Ultimately, failing to meet the needs of an individual's beliefs, attitudes, and behaviors may limit the therapeutic outcomes of treatment.

Seeking contemporary knowledge through various sources of information is the hallmark of a successful therapist. Of those individuals who felt competent treating chronic pain, a majority of them (73%) reported using research journals and/or medical websites as their primary source of information regarding the proper treatment of chronic pain. Twenty-one "competent" therapists (70%) also reported relying on informal peer discussion as a way of discovering new information regarding chronic pain treatment. Reliance on peer discussion for information is congruent with our findings of "competent" occupational therapists who reported working collaboratively with other disciplines when treating clients with chronic pain. Twenty therapists (66.7%) reported working collaboratively more than 50% of the time. This finding is consistent with the literature that reports improved outcomes when treating chronic pain from a multidisciplinary or interdisciplinary approach. Though it appears important to approach treatment from a collaborative perspective, the effectiveness of relying on peer discussions as one of the primary sources of education is unknown. Relying on peer discussion with other disciplines may negatively influence occupational therapists' ability to maintain a true professional occupational perspective.

Another distinction between our finding and the literature review demarcates the importance of an interdisciplinary treatment plan that emphasizes the biopsychosocial approach. According to Oslund et al. (2009), interdisciplinary treatment plans are most effective when they incorporate the biological components of injury with the psychological reaction to pain. The majority of surveyed therapists reported working

collaboratively with other disciplines more than half the time when treating clients with chronic pain, however the same majority describe the predominant use of the rehabilitative and biomedical models (largely defining pain by physical sensations) to guide their treatment interventions. These contradictory methods may be limiting occupational therapy's effectiveness in the provision of chronic pain management. With the primary focus on regaining function through a holistic approach utilizing physical and psychosocial knowledge, occupational therapists could become leaders within interdisciplinary treatment plans.

As a professional, an occupational therapists' participation in an organized educational activity as a means of maintaining and enhancing professional competency is an important aspect of practice. Continuing education units (CEU) are required by national regulations in order for professionals to maintain licensure (American Occupational Therapy Association, 2003). Workshops and educational lectures are a common way for occupational therapists to further their understanding of specific topics. Of the "competent" therapists surveyed in this study, less than half (47%) reported attending 1-3 continuing education workshops regarding chronic pain within the past three years. Moreover, out of the total number of participants, over half (54.49%) reported not having attended any continuing education opportunities regarding chronic pain within the past three years. With the majority of respondents relying on collaboration with other disciplines and informal peer discussions, the implied lack of formally structured education could encourage occupational therapists to rely on information irrelevant to the foundations of occupational therapy.

Limitations

The initial study was designed to compare evidence-based literature regarding chronic pain to contemporary occupational therapy practice as it relates to the treatment of this disorder. Upon completion of the literature review, the paucity of research specific to occupational therapy interventions and outcomes became apparent. This limitation shifted our focus towards an exploratory investigation of how current occupational therapists are approaching treatment for individuals with chronic pain.

The initial sampling method involved emailing potential participants with a direct link to the survey; however, the researchers were unable to access practitioner email addresses. The researchers created and sent postcards, requesting practitioners to complete the survey through the provided URL address, or to contact the researchers through email to receive a direct link online. In the case of web-based administration, computer access, knowledge, and skills are required of participants to successfully complete the survey. These challenges were thought to have played a role in the limited rate of response.

Approximately 400 postcards yielded 35 responses for an 8.8% rate of response. Failure to collect data from a high percentage of the sample resulted in a non-response bias. Therefore, estimates of the prevalence of characteristics based on data from the survey sample are too low to be generalized to the greater population under study. Considering the low rate of response implies a meaningful reflection of the study's limitations versus the professional attitudes toward this topic. It is unknown whether the low rate of response was reflective of the participants' lack of expertise in the survey's topic or was a result of poor sampling methodology.

Another limitation included the researchers' inability to maintain a randomized sample of the population, resulting in a sample bias. The researchers obtained therapists' mailing addresses through the American Occupational Therapy Association (AOTA); therefore, participants were only included in the sample if they were active members of the association. This limited the ability to reach all practicing occupational therapists meeting the inclusion criteria.

The self-report nature of this survey may have lead to a response bias, as those individuals who commonly treat chronic pain would have been more likely to complete the survey. Common survey bias may have also played a significant role in the interpretation of survey questions. The survey was non-standardized and had no psychometric testing.

Though many limitations exist in this study, the most notable was the lack of responses. The rate of return was not large enough to be reflective of the overall number of potential therapists approached to take part in this study. This limited the researchers' ability to indicate significant findings associated with the study's variables. The presence of multiple categorical variables resulted in too many degrees of freedom. These limitations, coupled with a small data set, produced wide confidence intervals too large to be analyzed. Furthermore, low cell count during data analysis strictly limited the ability to conduct significant inferences regarding the population, resulting in the possibility of Type II error (inability to find associations when they actually exist).

Implications for Practice

This study suggests the need for consensus among occupational therapy's approach to treating clients with chronic pain. Conducting a similar study with a much

larger population may validate the findings described in this exploratory study. In order to determine the true validity of scientific findings, multiple studies are required which address the same research questions and produce consistent findings (Kielhofner, 2006). A general understanding of how occupational therapists treat chronic pain may be the foundational knowledge needed for researching “best practice” criteria.

Future studies should focus on “best practice” criteria specific to which assessments, interventions, and approaches are most beneficial when treating chronic pain. Furthermore, inquiry into associations between the use of evaluations/assessments specific to occupational therapy and practitioner perception of competency may promote the use of occupation-based assessments as part of “best practice” guidelines. Similarly, studies should be undertaken that identify the most beneficial models/frames of reference and modalities specific to treating chronic pain.

One of the most predictive factors of a successful therapeutic outcome is the clinician’s educational expertise. If occupational therapists are predominantly seeking educational information from peers in other disciplines, it may perpetuate their inability to effectively trust in and define their role in the treatment of chronic pain.

Conclusion

The meaning that exists in the relationship between occupation and wellness indicates that there is no need for occupational therapists to depend on other disciplines for guidance (Wilcock, 1999). Instead, occupational therapists must take the necessary actions of conducting scientific research to solidify the credibility of the profession’s occupational awareness. Disregarding how occupational therapists are currently

providing treatment will only perpetuate the reliance on other disciplines and the more traditional approaches of occupational therapy's past.

This study's findings demonstrate the need for future research to deeply investigate the factors associated with effective occupational therapy treatments for clients with chronic pain. In order to establish "best practice" criteria for occupational therapists, underlying common characteristics of current practice must first be understood. Examining strategies employed by competent occupational therapists used to treat complex populations will help align current practice with "best practice."

Identifying and appreciating the unique perspectives of occupational therapists can have a profound impact on the perpetuation and success of the profession and the increasingly diverse needs of the clients they treat.

APPENDICES

APPENDIX A
SURVEY

Chronic Pain Survey

1. Default Section

1. How long have you been employed as an outpatient occupational therapist?

- ☐ Less than 1 year
- ☐ 1-5 years
- ☐ 5-10 years
- ☐ 10-15 years
- ☐ 15+ years

2. How competent do you feel in treating clients with chronic pain?

- ☐ Not competent
- ☐ Somewhat competent
- ☐ Very competent

3. On average, how many clients do you treat per week with a primary diagnosis of chronic pain?

- ☐ 0
- ☐ 1 to 2
- ☐ 3 to 4
- ☐ 4 to 5
- ☐ 5+

4. In what anatomical locations do you most frequently treat chronic pain (check all that apply)?

- ☐ Cervical
- ☐ Shoulders
- ☐ Low Back
- ☐ Upper Extremity
- ☐ Lower Extremity
- ☐ Other (please specify)

Chronic Pain Survey

5. What types of evaluations do you use to assess clients with chronic pain regarding their occupational profile (check all that apply)?

- | | |
|--|---|
| <input type="checkbox"/> Occupational Performance History Interview-II | <input type="checkbox"/> Pain Self-Efficacy Questionnaire |
| <input type="checkbox"/> Functional Independence Measure | <input type="checkbox"/> Facility specific assessment |
| <input type="checkbox"/> Canadian Occupational Performance Measure | <input type="checkbox"/> Subjective Report (i.e. visual analog scale, rate pain on a scale of 0-10) |
| <input type="checkbox"/> Other (please specify) | |

6. On a scale of 0-10, what would you consider to be a patient's reported level of mild, moderate, and severe pain?

	0	1	2	3	4	5	6	7	8	9	10
Mild	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moderate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Severe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. At what level of reported pain would you stop the treatment session given a patient's stated level of discomfort?

	0	1	2	3	4	5	6	7	8	9	10
Rating Scale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. What frame of reference/model guides your treatment methods (check all that apply)?

- | | |
|--|---|
| <input type="checkbox"/> None | <input type="checkbox"/> Cognitive-Behavioral Theory |
| <input type="checkbox"/> Biomedical | <input type="checkbox"/> Model of Human Occupation |
| <input type="checkbox"/> Rehabilitative | <input type="checkbox"/> Canadian Model of Occupational Performance |
| <input type="checkbox"/> Biopsychosocial | <input type="checkbox"/> Person-Environment-Occupation |
| <input type="checkbox"/> Neurodevelopmental Theory | |
| <input type="checkbox"/> Other (please specify) | |

Chronic Pain Survey

9. As a clinician, what area of occupational performance do you feel is the most limited in patients experiencing chronic pain (check all that apply)?

- | | |
|----------------------------------|---|
| <input type="checkbox"/> ADL | <input type="checkbox"/> School |
| <input type="checkbox"/> IADL | <input type="checkbox"/> Play |
| <input type="checkbox"/> Work | <input type="checkbox"/> Rest and Sleep |
| <input type="checkbox"/> Leisure | <input type="checkbox"/> Social Participation |

10. How effective would you rate these modalities to be when treating patients with chronic pain?

	Not Effective	Somewhat Effective	Effective	Extremely Effective
Cold Modalities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heat Modalities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Massage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relaxation techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Iontophoresis/Phonophoresis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electrical Stimulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transcutaneous Electrical Nerve Stimulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ultrasound	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acupressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fluidotherapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whirlpool	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paraffin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biofeedback	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exercise conditioning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other (please specify)

Chronic Pain Survey

11. On average how often do you use these modalities when treating patients with chronic pain?

	Never	1-4 Treatments Per Month	5-10 Treatments Per Month	More Than 10 Treatments Per Month
Cold Modalities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heat Modalities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Massage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relaxation techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Iontophoresis/Phonophoresis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electrical Stimulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transcutaneous Electrical Nerve Stimulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ultrasound	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acupressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fluidotherapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whirlpool	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paraffin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biofeedback	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exercise conditioning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional Comment

12. How often do you work collaboratively with other professionals when treating clients with chronic pain?

- ☐ 0%
☐ 25%
☐ 50%
☐ 75%
☐ 100%

13. How frequently do you refer clients to other disciplines for specialized pain management (outside of your facility)?

- ☐ Never
☐ Occasionally
☐ Frequently
☐ Always

Chronic Pain Survey

14. What is your primary source of accessing information about chronic pain (check all that apply)?


- ☐ Research journals
- ☐ Medical websites
- ☐ Continuing education workshops
- ☐ Clinical in-service
- ☐ Peer discussions
- ☐ Other (please specify)

15. How many workshops/educational sessions have you taken within the last three years regarding chronic pain?

- ☐ None
- ☐ 1 to 3
- ☐ 4 to 6
- ☐ 7 to 10
- ☐ More than 10

APPENDIX B

POSTCARD



Dear Occupational Therapist,

We are occupational therapy students conducting a study about chronic pain. By taking the following 15 minute web-based survey (see link below) you will assist us in understanding how occupational therapists such as yourself are treating individuals with chronic pain. Participation in this survey is voluntary, and the confidentiality of your response is assured. Your response will be sincerely appreciated and we look forward to your reply.

Please access the survey at: https://www.surveymonkey.com/s.aspx?sm=2OmyiMse24ei0zN7_2bXes8A_3d_3d

You may also e-mail the authors below for a quick link to the survey!
Thank you in advance!

Sincerely,
Jennifer Gough, MOTS jgough@medicine.nodak.edu
Laura Roush, MOTS lroush@medicine.nodak.edu

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